

1 WE CLAIM:

1 1. A digital video recorder for storing a plaintext video program as an encrypted video
2 program, the digital video recorder comprising:
3 (a) a random access storage (RAS) device for storing the encrypted video program in
4 encrypted segments;
5 (b) a cryptography facility comprising:
6 an encoder for encrypting plaintext segments of the plaintext video program into
7 the encrypted segments stored on the RAS device; and
8 a decoder for randomly and independently decrypting each encrypted segment of
9 the encrypted video program into a plaintext segment during playback.

1 2. The digital video recorder as recited in claim 1, wherein the cryptography facility further
2 comprises a pseudo-random sequence generator for generating a pseudo-random
3 sequence.

1 3. The digital video recorder as recited in claim 2, wherein:
2 (a) the pseudo-random sequence generator is initialized with segment seed values
3 corresponding to the plaintext segments of the plaintext video program; and
4 (b) the encoder combines the pseudo-random sequence generated for each segment seed
5 value with the plaintext segments of the plaintext video program to generate the
6 encrypted segments of the encrypted video program stored on the RAS device.

1 4. The digital video recorder as recited in claim 2, wherein:
2 (a) the pseudo-random sequence generator is initialized with segment seed values
3 corresponding to the encrypted segments of the encrypted video program; and
4 (b) the decoder combines the pseudo-random sequence generated for each segment seed
5 value with the encrypted segments of the encrypted video program to generate the
6 plaintext segments of the plaintext video program during playback.

1 5. The digital video recorder as recited in claim 2, wherein:
2 (a) the pseudo-random sequence generator comprises a linear feedback shift register
3 (LFSR); and
4 (b) the LFSR is initialized with segment seed values corresponding to the plaintext
5 segments of the plaintext video program during encoding, and with segment seed
6 values corresponding to the encrypted segments of the encrypted video program
7 during decoding.

1 6. The digital video recorder as recited in claim 5, further comprising a seed value generator
2 for generating the segment seed values from an initial value.

1 7. The digital video recorder as recited in claim 1, wherein:
2 (a) the RAS device comprises a hard disk drive (HDD) comprising a disk;
3 (b) the disk comprises a plurality of data tracks;
4 (c) each track comprises a plurality of data sectors; and
5 (d) each data sector stores an encrypted segment of the encrypted video program.

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1 8. A method for processing a video program in a digital video recorder comprising a random
2 access storage (RAS) device, the method comprising the steps of:
3 (a) encrypting plaintext segments of a plaintext video program into encrypted segments;
4 (b) storing the encrypted segments on the RAS device;
5 (c) randomly reading the encrypted segments from the RAS device; and
6 (d) independently decrypting each encrypted segment into a plaintext segment.

1 9. The method for processing a video program as recited in claim 8, further comprising the
2 step of generating a pseudo-random sequence using a pseudo-random sequence generator.

1 10. The method for processing a video program as recited in claim 9, further comprising the
2 steps of:
3 (a) initializing the pseudo-random sequence generator with segment seed values
4 corresponding to the plaintext segments of the plaintext video program; and
5 (b) combining the pseudo-random sequence generated for each segment seed value with
6 the plaintext segments of the plaintext video program to generate the encrypted
7 segments of the encrypted video program stored on the RAS device.

1 11. The method for processing a video program as recited in claim 9, further comprising the
2 step of:
3 (a) initializing the pseudo-random sequence generator with segment seed values
4 corresponding to the encrypted segments of the encrypted video program; and
5 (b) combining the pseudo-random sequence generated for each segment seed value with
6 the encrypted segments of the encrypted video program to generate the plaintext
7 segments of the plaintext video program.

1 12. The method for processing a video program as recited in claim 9, wherein:
2 (a) the pseudo-random sequence generator comprises a linear feedback shift register
3 (LFSR); and

4 (b) the LFSR is initialized with segment seed values corresponding to the plaintext
5 segments of the plaintext video program during encoding, and with segment seed
6 values corresponding to the encrypted segments of the encrypted video program
7 during decoding.

1 13. The method for processing a video program as recited in claim 12, further comprising the
2 step of generating the segment seed values from an initial value.

1 14. The method for processing a video program as recited in claim 8, wherein:
2 (a) the RAS device comprises a hard disk drive (HDD) comprising a disk;
3 (b) the disk comprises a plurality of data tracks;
4 (c) each track comprises a plurality of data sectors; and
5 each data sector stores an encrypted segment of the encrypted video program.